



National Institute of Justice

S o l i c i t a t i o n

Jeremy Travis, Director

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Solicitation for Video Sensing and Processing Technologies

APPLICATION DEADLINE:

May 28, 1999

U.S. Department of Justice
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Solicitation for Video Sensing and Processing Technologies

I. Introduction

The National Institute of Justice (NIJ), a component of the Office of Justice Programs, is the research agency of the U.S. Department of Justice. Created by the Omnibus Crime Control and Safe Streets Act of 1968, as amended, NIJ is authorized to support research, evaluation, and demonstration programs, development of technology, and both national and international information dissemination. Specific mandates of the Act direct NIJ to:

- o Sponsor special projects, and research and development programs, that will improve and strengthen the criminal justice system and reduce or prevent crime.
- o Conduct national demonstration projects that employ innovative or promising approaches for improving criminal justice.
- o Develop new technologies to fight crime and improve criminal justice.
- o Evaluate the effectiveness of criminal justice programs and identify programs that promise to be successful if continued or repeated.
- o Recommend actions that can be taken by Federal, State, and local governments as well as by private organizations to improve criminal justice.
- o Carry out research on criminal behavior.
- o Develop new methods of crime prevention and reduction of crime and delinquency.

NIJ's portfolio covers a diverse and dynamic array of research and development topics. Over the course of each year, the Institute's research program evolves as a result of consultations with researchers, technologists and practitioners, State and local policymakers, and partnerships with

other public and private organizations. The *NIJ Research Portfolio 1998* (document number 171670), which lists and describes ongoing NIJ research and development projects through May 1998, is available. The Institute encourages prospective applicants to consult that publication as well as *Building Knowledge About Crime and Justice: 1999 Research Prospectus of the National Institute of Justice* (document number 172883), as guides to NIJ's approach to criminal justice research and development.

II. Background

NIJ believes that many of today's crime problems require solutions extending beyond traditional criminal justice boundaries. An example of this is the advancement of technologies used in closed circuit television (CCTV) and video surveillance that assist CCTV operators and video investigators. This includes (1) technologies to help CCTV system operators overcome the tedious nature of monitoring a CCTV system and (2) ways to rapidly index video media and search large volumes of video media.

The Institute continues to discuss and promote research collaborations with other Federal agencies and private foundations and has established a variety of research partnerships. NIJ encourages researchers and practitioners from all disciplines to explore the opportunities for collaborative efforts presented in this directed solicitation and to propose appropriate arrangements.

III. Areas of Research Required

This portion of the solicitation seeks proposals that offer innovative and novel technology approaches that increase video surveillance effectiveness. In your proposal, please describe your proposed efforts to advance video sensing

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and processing technologies beyond the current state-of-the-art. Documented knowledge of your understanding of the current state-of-the-art is very important. If you are proposing a new technology, your proposal should focus on the appropriate phases of research, development, testing, evaluation, adoption, and implementation. Whatever the technology, your project should address real and significant problem areas. You may also propose modifications of existing technology to be used in new or innovative ways. In either case your technological solutions should serve as work force multipliers that assist CCTV operators and video investigators by enhancing their ability to perform their duties. Applicants should remember that the resulting technological solutions should be affordable to acquire as well as to maintain.

This solicitation is not intended to fund the purchase of existing video surveillance systems.

A. The Need for Technology

This solicitation is open to a variety of proposals in order to achieve a balanced portfolio of product development, implementation, proof-of-principle demonstrations, and evaluation projects. This solicitation focuses on near-term (1 to 2 years) projects. The integration of innovative and novel technologies with existing video surveillance capabilities could result in dramatic changes in the way CCTV and video analysis is conducted, resulting in increased law enforcement and corrections effectiveness and thereby safer communities.

General guidelines. You are encouraged to use the resources and expertise of the NIJ National Law Enforcement and Corrections Technology Center (NLECTC), Rockville, Maryland, and the regional NLECTC's located in Rome, New York; Charleston, South Carolina; Denver, Colorado; El Segundo, California; and the Border Research and Technology Center (BRTC), San Diego, California. More

information about the NIJ National Law Enforcement and Corrections Technology Center system is available on the Internet at <http://www.nlectc.org>.

You should keep in mind that cost considerations of resulting technology development products are a major concern. Most police departments and corrections agencies have limited resources for hardware purchases, and these must compete against the myriad training, support, and supply needs of the typical department. These and related factors all influence the timeliness and the degree to which new technologies are accepted by police planners and administrators. Please consider the questions below when determining the usefulness of your proposed new technology development effort. In your proposal, you should incorporate information that addresses the general themes posed by these questions; however, do not assume you must explicitly answer each question.

NIJ encourages you to submit proposals that link public and private sectors. This is especially true for links to law enforcement and corrections agencies. For example, partnerships between a police department and a company with technological expertise or a consortium that includes a police department and one or more companies or academic institutions would receive favorable consideration. Partnership groups should include an active member of a recognized law enforcement or corrections agency. Proposed partnerships need to be substantiated, including details of personnel agreements with the partner agency, planned level of effort, and access to the agency resources.

- a How important is the new technology to the overall use of video surveillance for law enforcement? What will be its impact on personnel requirements?
- How much will the technology cost to purchase, customize to fit local needs (if necessary), and maintain?

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- How many units will be needed?
- What are the hidden costs?
- What, if any, are the net savings in labor or other costs? Is the cost commensurate with the application value?
- How much training is required to use and maintain the technology?
- How will the courts view the technology in terms of liability and interference with personal freedom? What constitutional or other legal issues may arise from utilization of the technology? Are there chain-of-custody and investigative issues?

Focus areas. Within the following focus areas, there are specific needs that could be addressed with the application of innovative video surveillance technologies. These topics are not all-inclusive; you may submit proposals on video sensing and processing technologies in other application areas as well. Listed below are three descriptions of some of the kinds of projects included in the current NIJ portfolio.

- Officer protection and crime prevention. Law enforcement needs techniques, materials, and methods to improve the crime prevention aspects of law enforcement. One technology area used for this purpose is video surveillance. The use of video sensing and processing technologies, including CCTV, is expanding within the law enforcement community. With this expanded use, a reduction in criminal activity can be realized. This is evidenced by the use of CCTV on public streets and other public spaces, such as in Town Centers throughout the United Kingdom and to a lesser extent in the United States.

One challenge that operators of CCTV monitoring stations face is the ability to remain alert to and focused on what is being displayed. One way to address this challenge

is to provide some level of automation that augments and cues the operators while viewing the monitors. Biometric systems that combine facial recognition applications with video systems and "event detectors" are examples of this. Unfortunately, many of the automated, real-time video processing applications are challenged by lighting extremes, shadows, and changes in camera viewing angle. Therefore, NIJ is soliciting proposals that offer innovative and novel techniques that increase the effectiveness and robustness of automated video processing applications by addressing video conditions such as high dynamic range and low light level through the use of innovative video preprocessing and sensor development.

Your proposal should emphasize how your demonstration of advanced, innovative video sensing and processing technologies either advances the current state of the art or represents a new use of current technology. The benefit to the CCTV operator and video investigator must be addressed in your proposal.

- Communication and information technology. While this technology area is not the primary concern for this solicitation, it is mentioned because one aspect of information sharing will include the transfer of images. It is necessary therefore that your technology approach bear this in mind. If your proposal includes techniques for gathering video imagery, then your proposed video formats need to accommodate industry standards to maximize the transmission and sharing of the imagery as law enforcement increases communications interoperability.
- Forensics and investigative sciences. Law enforcement needs techniques, materials, and methods to improve the investigative nature of reviewing videotapes. A major event may require investigators to review a large number of videotapes in search of clues. A manual search is an inherently slow process and may

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result in missed opportunities for the investigation. One way to address this is to incorporate some degree of postprocessing either during the actual videotaping process or at some subsequent stage of the investigation. This could be in the form of a video indexing system or any other postprocessing system. If your proposal includes some form of video postprocessing, it should emphasize how you will advance the current state of the art or implement it as a new use of current technology. The benefit to the video investigator must be addressed in your proposal as well.

B. Creative Technology Solutions in Other Areas

The intent of this category is to serve as an "open window" to encourage the submission of research, development, and application proposals that will result in creative, innovative technologies to benefit users of video surveillance systems. All proposals in technology application, assessment, or practice areas not addressed in the previous focus areas will be considered in this category. You must explain the benefit that the CCTV operator and video investigator will derive from your proposal.

C. Selection Criteria

NIJ is firmly committed to the competitive process for awarding grants. All proposals are subjected to an independent, peer-review panel evaluation. The panel consists of members with academic, practitioner, technical, and operational expertise in the subject areas of the solicitation. Selection criteria used to evaluate proposals are as follows:

1. Quality and Technical Merit

- o Soundness of methodology or of analytic or technical approach.
- o Innovation and creativity.

- o Feasibility of proposed project; awareness of pitfalls.
- o Awareness of existing research and related applications.

2. Impact of the Project

- o Understanding importance of the problem.
- o Potential for significant advance in crime prevention, law enforcement, courts, corrections, or other practice or policy area.
- o Potential for advancement of scientific understanding of the problem area.
- o Relevance to practice, including development and demonstration in application domains (if applicable).
- o Affordable end products (if applicable).

3. Capabilities, Demonstrated Productivity, and Experience of Applicants

- o Qualifications and experience of personnel as related to proposed project.
- o Responsiveness to the goals of the solicitation.
- o Demonstrated ability to manage proposed effort.
- o Adequacy of proposed resources to perform effort.

4. Budget Considerations

- o Total cost relative to perceived benefit.
- o Appropriate budgets and level of effort.
- o Use of existing resources to conserve costs.
- o Cost-effectiveness of program or product for application in the criminal justice system (if applicable).

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After peer-review panelists' consideration, Institute staff makes recommendations to NIJ's Director based on the results of the independent reviews. Final decisions are made by the NIJ Director following consultation with Institute staff.

IV. How to Apply

Those interested in submitting proposals in response to this solicitation must complete the required application forms and submit related required documents. (See below for how to obtain application forms and guides for completing proposals.) Applicants must include the following information/forms to qualify for consideration:

- Standard Form (SF) 424—application for Federal assistance
- Assurances
- Certifications Regarding Lobbying, Debarment, Suspension and Other Responsibility Matters; and Drug-Free Workplace Requirements (one form)
- Disclosure of Lobbying Activities
- Budget Detail Worksheet
- Budget Narrative
- Negotiated indirect rate agreement (if appropriate)
- Names and affiliations of all key persons from applicant and subcontractor(s), advisors, consultants, and advisory board members. Include name of principal investigator, title, organizational affiliation (if any), department (if institution of higher education), address, phone, and fax
- Proposal abstract
- Table of contents
- Program narrative or technical proposal
- Privacy certificate
- References
- Letters of cooperation from organizations collaborating in the research project
- Résumés
- Appendixes, if any (e.g., list of previous NIJ awards, their status, and products [in NIJ or other publications])

Proposal abstract. The proposal abstract, when read separately from the rest of the application, is meant to serve as a succinct and accurate description of the proposed work. Applicants must concisely describe the research goals and objectives, research design, and methods for achieving the goals and objectives. Summaries of past accomplishments are to be avoided, and proprietary/confidential information is not to be included. Length is not to exceed 400 words. Use the following two headers:

Project Goals and Objectives:

Proposed Research Design and Methodology:

Page limit. The number of pages in the “Program Narrative” part of the proposal must not exceed 30 (double-spaced) pages.

Due date. Completed proposals **must be received** at the National Institute of Justice by the close of business on May 28, 1999. Extensions of this deadline will not be permitted.

Award period. In general, NIJ limits its grants and cooperative agreements to a maximum period of 12 or 24 months. However, longer budget periods may be considered.

Number of awards. NIJ anticipates supporting several grants under this solicitation. There is \$175,000 available for funding this solicitation in FY 1999, with additional funding possible from the Safe Schools Initiative. It is anticipated that \$800,000 will be available in FY 2000.

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Applying. Two packets need to be obtained: (1) application forms (including a sample budget worksheet) and (2) guidelines for submitting proposals (including requirements for proposal writers and requirements for grant recipients). To receive them, applicants can:

- Access the Justice Information Center on the web:

<http://www.ncjrs.org/fedgrant.htm#NIJ>

or the NIJ web site:

<http://www.ojp.usdoj.gov/NIJ/funding.htm>

These web sites offer the NIJ application forms and guidelines as electronic files that may be downloaded to a personal computer.

- Request hard copies of the forms and guidelines by mail from the National Criminal Justice Reference Service at 800–851–3420 or from the Department of Justice Response Center at 800–421–6770 (in the Washington, D.C., area, at 202–307–1480).
- Request copies by fax. Call 800–851–3420 and select option 1, then option 1 again for NIJ. Code is 1023.

Guidance and information. Applicants who wish to receive additional guidance and information may contact the U.S. Department of Justice Response Center at 800–421–6770. Center staff can provide assistance or refer applicants to an appropriate NIJ professional. Applicants may, for example, wish to discuss their prospective research topics with the NIJ professional staff.

Send completed forms to:

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SL000348

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